College, Cardiff, has been appointed to succeed Professor C. Lapworth, F.R.S., who retires at the close of the present year.

PROFESSOR ABDERHALDEN goes to Vienna as the successor of Professor Ludwig, to take charge of the Institute for Medical Chemistry.

A CHAIR of exotic pathology has been established at the Collège de France. The assembly of the professors of the college has submitted for the choice of the ministry, Dr. Nattan-Larrier as their first choice and Dr. Tanon as their second choice for this chair.

DISCUSSION AND CORRESPONDENCE

SOME FACTS CONCERNING MENDELISM

IN the *American Breeders' Magazine,* No. 1, Vol. 6, there is a short sketch of the life of Thomas Andrew Knight. Attention is drawn to the fact that Mr. Knight gave to the Horticultural Society of London, in 1823, the results of some experiments that he had carried on in cross breeding peas. Following this statement Mr. Knight's reason for using peas is given, and it is remarked as peculiar that he was using the same plants, as Mendel later did, in breeding experiments and discussing these experiments a year after Mendel was born. Consulting the original paper of Mr. Knight's in the proceedings of the Horticultural Society for 1823, a reference was found to another paper in the same volume of proceedings which was written in 1822, the year Mendel was born. The author of this second paper was Mr. John Goss. It seems that Mr. Goss had been cross breeding the Prolific Blue pea and a dwarf pea and had obtained some results which he thought worthy of publicity.

In part the article of Mr. Goss is as follows:

> In the summer of 1820 I deprived some blooms of the Prolific Blue of their stamina and the next day applied the pollen of a dwarf pea, of which impregnation I obtained three pods of seed. In the following spring when these were opened, in order to sow the seed, I found to my great surprise, that the color of the peas instead of being deep blue, like their female parent, was of a yellowish white, like the male. Toward the end of the summer I was equally surprised to find that these white seeds had produced some pods with all blue, some with all white, and many with both blue and white peas in the same pod.
>
> Last spring I separated all the blue peas from the white, and sowed each color in separate rows; and I now find that the blue produces only blue, while the white seeds yield some pods with all white, and some with both blue and white peas intermixed.

It would seem from the above that Mr. Goss had a great law within his hands, but because of the fact that the first three pods of seeds seemed to show direct effect of pollen he lost sight of the very thing that was later stated as a law, and continued his paper as a discussion of direct effect of pollen in the first impregnation.

Following immediately the paper of Mr. Goss's in the proceedings is a note by the secretary of the society referring to a communication of one Alexander Seton, Esq., which was read before the Society on August 20, 1822. It seems that Mr. Seton made a similar experiment to that of Mr. Goss, with the following results: Mr. Seton impregnated the Dwarf Imperial, a green variety of pea, with the pollen of a white, free-growing variety. From this pollination he obtained only one pod, which contained four peas, and which did not differ in appearance from the others of the female parent. The plants that grew from these four peas seemed to partake of the nature of both parents, being taller and more profuse than the Dwarf Imperial and less so than the male white parent, and the pods resembled those of the former, being short and having but few peas in each pod. On their ripening it was found that instead of their containing peas like those of either parent or of an appearance between the two, almost every one of them had some peas of the full green color of the Dwarf Imperial and others of the whitish color of the other parent. They were, however, found in undefined numbers in the pods, and all of the peas were completely of one color or the other, with none having an intermediate tint, as Mr. Seton had expected. Accompanying these two papers and opposite page 273 of volume 5 of the transactions of the Horticultural Society of London, pub-

lished in 1824, there is found a plate showing one of the pods produced by Mr. Seton. This colored plate shows two green peas and three white ones in the same pod.

It is interesting to note how close these men came, in the year of his nativity, to the law which later made Mendel famous.

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THE FOOD OF PLANTS

DR. BENEDICT in a recent number of SCIENCE opens the question regarding the definition of the word food as used by botanists.

That we need to come to some agreement is, I think, generally felt by teachers in all grades of the subject.

If we have in mind the plant's relation to substances outside of itself which may be taken and used in any of its vital processes, then carbon dioxide, water and minerals are food. This notion was suggested by the animal organism, which, however, is essentially unlike a plant in respect to immediate external relations. The term plant food arose to emphasize the importance of certain mineral constituents of the soil. Its use ignores the green plant's unique place in nature, and by implication even denies it.

If on the other hand we have reference to growth and repair of living tissue, carbon dioxide, water and minerals are waste products, the antithesis of food.

The question resolves itself into this, to which concept of the plant's activities is the concept food most nearly related? If the answer is nutrition then only such substances as can be oxidized in the tissues and energy thereby set free, are foods. To answer the question otherwise is not only to invite trouble from such a term as reserve food, but worse, make the whole subject of metabolism impossible of presentation. If we write the words "energy stored" and "energy set free" in the equations for photosynthesis and for respiration, the term food, in its commonly accepted sense is clear, and the term as applied to inorganic matter an absurdity. Nevertheless, the term plant food as applied to nitrate of soda, etc., is with us to stay, just as surely as oysters will continue to be known as shellfish.

It is our business to fit pedagogic methods to the facts and see that fundamental truths are clearly set forth regardless of how many qualifying terms we must employ.

I forbear quoting sentences from text-books in which the term food is used in opposite senses without explanation, thus by implication denying the importance of photosynthesis and ignoring the law of conservation of energy. Hypercriticism is born of pedantry, but consistency is a jewel. The agriculturist can not use our term fruit and we can not use his term plant food without contradiction and confusion. The trouble is not so much one of definition as of usage. A Frenchman who was learning English said: "When a horse goes rapidly you say he is fast, and when you tie him to the post he is fast. Your language is very difficult."

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A GOOD SOIL TUBE

GLASS tubes are generally used in soil physics laboratories when carrying on experiments on capillary rise and distribution of water in soils. To give the best results these must be one and one half to two inches in diameter, and are expensive and fragile. In student laboratories with class numbering 100 or more the writer has had an annual breakage of over 75 per cent.

During the past year a new style of tube has been used in the soil technology laboratories at the University of California. This form was suggested to the writer by Professor E. O. Fippin, of Cornell, and is in use there and in other laboratories.

The tubes consist of a wire-mesh cylinder, two inches in diameter and of the desired length, made by wrapping one fourth inch mesh wire netting around a form and riveting the edges at intervals of six or eight inches. Celluloid tubes made of thin transparent sheet